

Highlights

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* ELECTION RESULTS

* SPACE PROBES

* SOLAR TELESCOPE

* TECHNOLOGY FOR SALE?

* ATOMIC FALLOUT

* RESEARCH CHECKLIST

Washington SCIENCE TRENDS

ELECTION RETURNS, giving Democrats a substantial margin in House and Senate presage a number of important developments in the science and engineering fields, particularly in atomic power and national defense. In addition, decisions which have been delayed pending last week's balloting will now have to be faced.

Here is how Congressional sources view the likely results of the Democratic landslide:

* **ATOMIC POWER** programs, long a sore subject with the liberal wing of the party, will be stepped up. Under the leadership of the Joint Committee on Atomic Energy, this means more Federal money for research, development and production of reactors and radiation sources, more cries for Federal "leadership" in the field.

* **NUCLEAR MERCHANT MARINE** prospects will also improve under the sponsorship of East and West coast Democrats. This means more Federal money for such projects as the nuclear cargo ship and the submersible nuclear tanker. It may also bring new life to the program for a nuclear icebreaker.

* **SPACE EXPLORATION**, a pet subject for such Democratic leaders as Sen. Lyndon Johnson, (Tex.) and House Majority Leader John L. McCormack, (Mass.) will receive new emphasis. This means more money, and careful scrutiny, of the new National Aeronautics and Space Administration.

* **MEDICAL RESEARCH** funds will again exceed the budget requests of the Eisenhower Administration. This means more money for the National Institutes of Health and more money for research grants throughout the nation. Federal aid for global health programs and some sort of new program for medical schools are also in the offing.

Other results are less apparent, but as important. Watch for a campaign by Western Democrats to step up programs aimed at economic conversion of saline water. Watch for stubborn resistance to an industry campaign to change features of the patent policies in the Space Administration.

Decisions delayed by the election must now be made. These include a choice between the Thor and Jupiter Intermediate Range and possibly Titan and Atlas Intercontinental Range missiles as well as the Air Force Bomarc and the Army's Nike-Hercules anti-aircraft weapons. The Navy must soon decide whether to back the Chance Vought F8U-3 or the McDonnell F4H-1 as its all-weather interceptor. The Air Force may be required to concentrate on either the B-58 or the B-70 Bomber.

U. S. ARMY hopes to have its lunar probe vehicle ready for launching in early December and will reportedly include a Land Polaroid camera in its payload for photos of the Moon's far side. A new type of launching platform, which allows for continuous ground "aiming" of the rocket, may be used for the first time. This system would also require continuous changes in the initial trajectory program.

RUSSIAN MOON PLANS are discussed in an interview with Dr. Vitaliy Bronshten of the Moscow Planetarium which has just reached Washington. According to these reports Soviet scientists expect to launch a half-ton device "in the near future." Two variations "have been prepared" -- one intended to orbit the moon and return to Earth and the other to land on the lunar surface.

RUSSIAN LUNAR PROBE will reportedly "be equipped with instruments for determining the Moon's mass and conductivity of heat and electricity; with apparatus for investigating the Moon's surface and discovering possible landing places for man-carrying space vehicles; with instruments for determining whether the Moon has a magnetic field similar to those of the Earth and Sun; and with television apparatus for viewing the far side of the Moon."

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SOLAR TELESCOPE PLANS are now well underway and initial contracts have been awarded. The National Science Foundation has just allocated another \$4 million for the observatory to be constructed at Kitt Peak in the Quinland Mountains of Southwestern Arizona. The 80 x 60 device will be several times larger than any in existence and its focal length will be about twice that of the famed telescope on Mount Wilson.

Associated Universities for Research in Astronomy will build the device. The AURA comprises the following universities: California, Chicago, Harvard, Indiana, Michigan, Ohio State, Wisconsin and Yale. Corning Glass Works has a \$115,000 contract for delivery, during the Summer of 1959, of a pyrex blank for the 80-inch reflector.

Kitt Peak is a sacred mountain to the local Papago Indians. Extended negotiations were necessary to obtain use of the site. In addition to monetary considerations the tribe will have the right to sell its hand-made baskets and other arts and crafts to visiting solons.

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U. S. WEATHER BUREAU needs tornado photographs taken from any angle by professionals and amateurs. The photos will be used in applying methods of aerial mapping to the study of this weather phenomena. Preliminary studies show that the funnel of the tornado is not directly under the main storm cloud, but appears to hang from a point near the center of a stack of other related clouds. When the trunk contracts, it tends to lift from the ground. (Prints should be carefully marked as to place, time and date and whether return is requested. Send them to Severe Local Storm Research Unit, Office of Meteorological Research, Weather Bureau, Washington 25, D. C.

RUSSIA'S ECONOMIC OFFENSIVE, particularly in the field of technological know-how, is causing deep concern in Washington. Moscow is apparently routing inquiries to numbers of industrial concerns, intimating purchases in the millions of dollars range. Advanced technology and modern high-output industrial plants rate high on the Russian shopping list.

Commerce Department knows of requests for several large petrochemical plants; for petroleum refineries; for tire and tire cord plants; for textile processing plants; for synthetic tire plants; for plastics plants, especially polyethylene; and for steel finishing plants, especially high-speed continuous tinning and galvanizing lines.

OFFICIAL U.S. POLICY on such sale is complex. Among the major considerations are whether the proposed sale of equipment or technical data involve items of significant strategic importance and whether a denial of an export license only means that a foreign firm will get the order.

Technical data licenses have so far been issued for plants for the production of synthetic fibers, for textile manufacturing and for the tinning and galvanizing lines. Rejected license applications include petroleum exploration and production and certain petrochemicals and plastics which are considered to have highly strategic applications.

Policy decisions are still in the making which may change this picture. A Commerce Department export official pointed out last week that commodities may at times be permitted to move in trade because they are consumed. However, entire plants and technical data of long-range importance may be rejected. It is pointed out that a plant which can produce motor grade fuel may also produce aviation fuel. A fertilizer plant can be adapted for explosives and a plant that turns out plastics for squeeze bottles and packaging can also be helpful in the production of proximity fuzes and military communications wire.

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PATENT OFFICE will soon publish the first installment of a new language, comprising about 150 terms of machine English. The language will be called "Ruly" English and will be of aid in machine searching in the patent field. The "words" are generally roots modified by prefixes and suffices. A typical root is the word "Resilrig" -- a combination of resilience and rigidity.

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RADIOACTIVE FALLOUT may be removed from farmland under methods being developed by the Agriculture Department at its Beltsville, Md. Research Center. Engineers and soil scientists are attempting to determine how best to restore the usefulness of land contaminated by accidents or by enemy atomic or hydrogen weapons. Raking and removing heavy and medium mulch layers proved to clean up nearly all radioactivity from test plots. Experiments are now in progress to determine the decontaminating ability of emulsified asphalt and other soil treatments on bare surface soil.

THE CHECKLIST

- () Atomic Artillery development at the Army's Picatinny Arsenal discussed in non-classified terms. Army data processing plans and equipment are also surveyed. 25 Cents. (Write Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C. for December Issue, Army Information Digest)

- () Nuclear Power Station plans by the British Government include construction of the largest plant in the world, a 650 megawatt station on the Suffolk Coast. Free. (Write British Information Services, 45 Rockefeller Plaza, N.Y. 20, N. Y. for Release P. 10134)

- () Solar Radiation, a world wide summary of plans and progress including details of the world's first solar-powered industrial plant. 30 Cents. (Write UNESCO Publications Center, 801 Third Avenue, N.Y., N.Y. for Solar Radiation Issue of the UNESCO Courier)

- () High Precision Lenses can be tested with a rapid and accurate visual device which has proven useful for lenses such as those in airplane cameras and telescopes. Free. (Write National Bureau of Standards, Office of Technical Information, Washington 25, D.C.)

- () Hospital Training for high school and college students made possible at Veterans Administration hospitals across the country through a Junior Volunteer program. (Details from Information Service, Veterans Administration, Washington 25, D.C.)

- () Army Engineers are currently conducting tests of all-welded aluminum bridge trusses, knitted paper sandbags and a new type of fire hose with a Dacron jacket and synthetic rubber lining. (Details from Technical Liaison Office, Engineer Research and Development Laboratories, Ft. Belvoir, Va.)

- () Helium Plant Construction plans announced by the U.S. includes a program calling for construction of up to 12 new plants by the Government or private industry for recovery of helium from natural gas. (Write U. S. Department of the Interior, Information Services for Release PN 45278)

- () International Geophysical Year bibliography, the first of a series, lists 704 references including titles translated from the Russian, Japanese and East European languages. 64 pages; \$1. (Write Publications Office, National Academy of Sciences, Washington 25, D.C.)

- () Hot Laboratory Equipment, a revised edition of the handbook on facilities, equipment and accessories for handling moderate to large amounts of radioactive materials. 429 pages; \$2.50. (Write Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C. for Doc. Y 3. At 7:2 L 11/2)

- () Atoms For Peace, U.S.A. A pictorial tour of peaceful U.S. atomic energy programs. 166 pages; \$4.50. (Write Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C. for Doc. Y 3. At 7:2 P 31/3)

